



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D5806-7

Job Sheet 207478



Part No: D5806-7

Job Qty: 4 pcs

Part Name: Spine



Part Weight: 0 lbs

Job Created: 2/26/20

Due Date: 3/27/20

Type: Stock

POSITIVE RECALL

EFFECTIVE 20/03/11 AUTH 507

RELEASED 9 DATE 20/03/11

Status: New

989

Priority: Medium

Job Tracking No:

Created By: Jennifer Renwick

Description:

Note: URF 20-522 DWG 5806 REV.A IPP REV:A NEW ISSUE 20.31.01 JV VERF:DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Large Fab - Basket - 1	4 pcs	3/27/20		0.00	0.27	Large Fab - 1		MGR
							Large Fab - 10		
							Large Fab - 2		
							Large Fab - 3		
							Large Fab - 4		
							Large Fab - 5		
							Large Fab - 6		
							Large Fab - 7		
							Large Fab - 8		
							Large Fab - 9		
							Large Fab - 11 (Various)		
							Large Fab - 12		
110	QC 5	4 pcs	3/27/20		0.00	0.00	QC 5 - 10		DAS MAR 17 2020 40 9-89
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		
							QC 5 - 9		
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
							QC 5 - 61		
							QC 5 - 81		



Container No: S264103



Part: D5806-7

Job No: 207478

Serial No/Batch: S264103

Revision: REV.A

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL : 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Date: 03/17/20

Plex 3/11/20 3:52 PM Dart.Renwick.Jennifer

120 Packaging 3-1 - Stock - B4B 4 pcs

3/27/20

0.00 0.00

Packaging 3 - 1 - B4B

Packaging 3 - 2 - B4B

Packaging 3 - 3 - B4B

Packaging 3 - 4 - B4B

Packaging 3 - 5 - B4B

Packaging 3 - 6 - B4B

Packaging 3 - 7 - B4B

Packaging 3 - 8 - B4B

Packaging 3 - 9 - B4B

Packaging 3 - 10 - B4B

Packaging 3 - 11 - B4B

Packaging 3 - 12 - B4B

Packaging 3 - 13 - B4B

Packaging 3 - 14 - B4B

Packaging 3 - 15 - B4B

Packaging 3 - 16 - B4B

Packaging 3 - 17 - B4B

Packaging 3 - 18 - B4B

Packaging 3 - 19 - B4B

Packaging 3 - 20 - B4B

Packaging 3 - 21 - B4B

Packaging 3 - 22 - B4B

Packaging 3 - 23 - B4B

Packaging 3 - 24 - B4B

Packaging 3 - 25 - B4B

Packaging 3 - 26 - B4B

Packaging 3 - 27 - B4B

Packaging 3 - 28 - B4B

Packaging 3 - 29 - B4B

Packaging 3 - 30 - B4B

Packaging 3 - 31 - B4B

Packaging 3 - 32 - B4B

Packaging 3 - 33 - B4B

Packaging 3 - 34 - B4B

Packaging 3 - 35 - B4B

Packaging 3 - 36 - B4B

Packaging 3 - 37 - B4B

130 QC 21 - SA

4 pcs

3/27/20

0.00 0.00

QC 21 - SA - 21

QC 21 - SA - 70

QC 21 - SA - 53

MAR 17 2020

Part Op 100 - 1- Cut as per dwg 2- Deburr

Descriptions: 110 - QC5- Inspect part completeness to step on W/O

120 - Identify as per dwg & Stock Location: _____

130 - QC21- Final Inspection - Work Order Release

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
M4130NTS0.500W.035	4130 Square Tube .500 X .500 X .035W	6.0764 ft (1.5191 ea)	100-Large Fab - Basket - 1	5260577

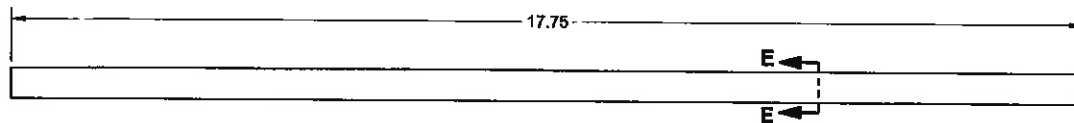
Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Large Fab - Basket - 1	M4130NTS0.500W.035	6	577	0

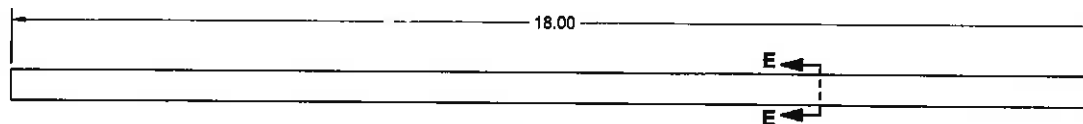
Part Specifications

Specifications could not be found.

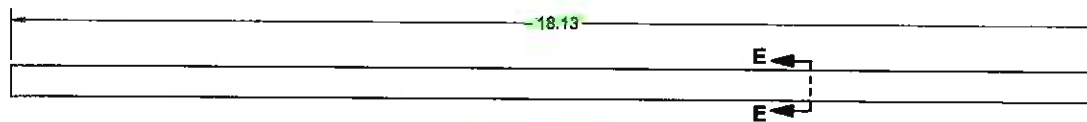
8 7 6 5 4 3 2 1



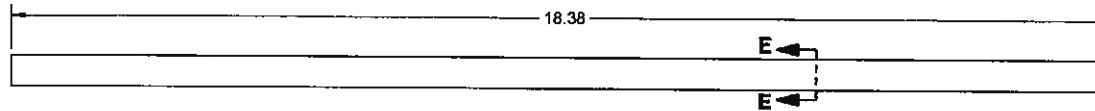
D5806-3 SPINE



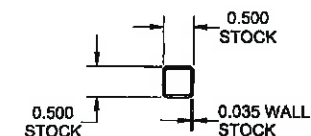
D5806-5 SPINE



D5806-7 SPINE



D5806-9 SPINE



SECTION E-E

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 207478

UNDER REVIEW

URF 2020.522 20.02.14 (NO)

NOTES:

- 1) MATERIAL: AISI 4130N STEEL SQUARE TUBING, 1/2 X 0.035 WALL
PER MIL-T-8736 OR AMS 6371/6360/6361/6362/6373/6374
REF DART SPEC M4130N-TS0.500W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: -3: 0.31 lbs
-5: 0.32 lbs
-7: 0.32 lbs
-9: 0.31 lbs

RELEASED
2020 FEB 18 *NO*

APPROVED

DESIGN	ZF	DART AEROSPACE LTD	
DRAWN	ZF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	KPT	DRAWING NO.	REV. A
MFG. APPR.	DD	D5806	SHEET 5 OF 7
APPROVED	NO	TITLE	SCALE
DE APPR.	CP	MEDIUM BASKET BODY	NTS
DATE	20.01.17	<small>COPYRIGHT © 2020 BY DART AEROSPACE LTD THIS DOCUMENT IS UNCLASSIFIED AND IS RELEASED ON THE SUPPLY CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR REPRODUCED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

8 7 6 5 4 3 2 1

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/>	DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Cross tube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> </div> <div> Eng. (Non-AW) <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Water Jet <input type="checkbox"/> Supplier <input type="checkbox"/> Quality <input type="checkbox"/> </div> </div>			
Date :	Sequence #:	QTY Affected :		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
Root Cause <div style="display: flex; flex-direction: column;"> <div>Operator <input type="checkbox"/></div> <div>Manufacturing Process <input type="checkbox"/></div> <div>Equip/Tooling <input type="checkbox"/></div> <div>Handling/Presservation <input type="checkbox"/></div> <div>Material <input type="checkbox"/></div> <div>Product Improvement <input type="checkbox"/></div> <div>Process Improvement <input type="checkbox"/></div> <div>Human Factors <input type="checkbox"/></div> </div>		FAULT CATEGORY <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Bending <input type="checkbox"/> Crushing <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave/Twist <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Mislabeled </div> <div style="width: 50%;"> <input type="checkbox"/> Contamination <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Incomplete/Unclear Instructions <input type="checkbox"/> Drill Holes <input type="checkbox"/> Fit/Function </div> <div style="width: 50%;"> <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain Direction <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Off-set/Set-up </div> <div style="width: 50%;"> <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Outside Tolerance <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Misread </div> </div>			
Other/Details:					

2/19/2020

PURCHASE ORDER



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (813) 632-5200

PURCHASE ORDER POHB045883



Supplier: FAC001-VU
Factory Steel
14020 Oakland Ave.
Detroit, MI 48203 USA
Phone: 313 883 6300
Fax: 313 883 4883

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: POHB045883

PO Date: 2/18/20

Due Date: 2/28/20

Purchase Order

Revision:

Revision Date:

Issued By:

Lavoie, Chantal
Phone: 613-623-5200 Ext: 242
Fax: 613-632-1053
clavoie@dartaero.com

Via:

Ground

Pymt Terms:

Net 30

Freight Terms:

Special Comments:

FEB 18 2020

Items

Line Item	Job	Part	Drawing	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1		M4130NTS0.500W.035			4130 Square Tube .500 X .500 X .035W MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6735 OR AMS 6371/6380/6361/6362 6373/6374 receive ft	Firmed	-	2/28/20	600 ft	0 ft	600 ft	\$6.49/ft	\$3,894.00
Grand Total: \$3,894.00													

Order Notes

Procurement Quality Clauses

A005 right of entry

A012 chemical and physical test report

A016 personnel qualification

A017 raw material identification (as applicable). No Raw Metals from China or Soviet Bloc Countries. (DFARS)

A026 certification of material conformance

A041 quality management system

A042 dart notification by supplier

A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program.

A049 supplier awareness.

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 2/19/20 2:52 PM Dart.Lavoie.Chantal

PACKING LIST

No. 67811

PG 1 OF 1

FACTORY STEEL & METAL SUPPLY
14020 OAKLAND AVENUE
DETROIT, MI 48203

(313)883-6300 PHONE
(313)883-4883 FAX

SOLD TO
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

CUSTOMER PO
POH8045883
CUSTOMER JOB

SALES ORDER
60752

ORDER DATE
02/19/2020

SHIP TO
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

BUYER
CHANTEL LAVOIE
Tel (613) 632-3336
Fax (613) 632-4443

SALES REP
MICK HALON

SHIP INST
CALL WHEN READY
PRO#

TERMS
NET 30 DAYS

SHIP DATE
02/21/2020

SHIP VIA
****TRUCK****

RESALE #
59-2958719

CARRIER
TRUCK

BLIND Y/N
N

FOB
DETROIT

LINE	QUANTITY	DESCRIPTION	WIDTH	LENGTH	WEIGHT
1	611.667 FT	<p>PACK IN CARDBOARD TUBE</p> <p>4130N CD SMLSS SQ TUBE 1/2" X .035W MILY-6736</p> <p>Tag Mill Ref # Heat 154506 023914 25537</p> <p>MTRS (CIRCLE) FAX SHIPMENT INVOICE ALL</p> <p>DATE: _____ INITIAL: _____</p>	Pcs Length 27 21' / 24' RL	21' / 24' RL	<p>135.361</p> <p>Feet Weight 611.667 135.361</p>
TOTAL WT		135 LBS			
RECEIVED BY - SIGNATURE		RECEIVED BY - PRINTED NAME		DATE RECEIVED	

61151

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130NTSO.500W.035 PO / BATCH NO.: POM90Y5883
 DATE: MAR 04 2020 5260577

MATERIAL CERT REC'D: YES THICKNESS ORDERED: .500X.500 W.035
 QUANTITY RECEIVED: 611 FT THICKNESS RECEIVED: .500X.520 W.035
 QUANTITY INSPECTED: 611 FT SHEET SIZE ORDERED:
 QUANTITY REJECTED: 0 SHEET SIZE RECEIVED:

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/> N	
CORROSION	Y <input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> N	MIL-T-6336
CORRECT THICKNESS	<input checked="" type="checkbox"/> N	
PHOTO REQUIRED	Y <input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> N	HIT 25537
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u> </u>	SIGNED OFF BY: <u> </u>		
DATE: <u>MAR 04 2020</u>	DATE: <u> </u>		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

LIME1

M4130NTS0.500W.035

10413045882



DESIGN D4	DRAWN BY D4	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED D4	APPROVED D4	DRAWING NO. M4130N-TS	REV. A SHEET 1 OF 1
DATE 05.02.09		TITLE 4130N SQUARE TUBING	SCALE NTS
A	05.02.09	NEW ISSUE	

PURCHASE MATERIAL:

AISI 4130N STEEL SQUARE TUBING PER ONE OF
THE FOLLOWING SPEC'S: MIL-T-6736, AMS 6371,
6360, 6361, 6362, 6373 OR 6374

PART NUMBER:

M4130N-TS | A.AAA | W | .TTT |

WHERE A.AAA = WIDTH IN INCHES
TTT = WALL THICKNESS IN INCHES

EXAMPLE: 0.50" X 0.035" WALL = M4130N-TS0.500W.035

RELEASED
05-03-05

Copyright © 2005 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



PLYMOUTH TUBE CO.

4708 E. 12th St. • Detroit, MI 48210
Phone: (313) 734-4515 Fax: (313) 734-7113

TRUST YOUR SOURCE. ACCEPT NO SUBSTITUTIONS!

PRODUCT CERTIFICATION

SALES ORDER - LINE / RLS

179687 - 1 / 0

SHIP TO

Factory Steel & Metal Supply C
14020 Oakland Avenue
Detroit, MI 48203
USA

WORK ORDER 023914

HEAT NUMBER 25537

MELT SOURCE Timken Steel - Melt/Mfg. USA

PCS/HEAT 0

CUSTOMER P.O.	CUSTOMER PART	QUANTITY	LADING NO	CERT ID / REV	CERT DATE								
3999	SQ-N12035												
PART DESCRIPTION SHSQ0500035J200 ***** Square OD ***** Side1: 0.5000 Max:0.5100 Min:0.4900 Side2: 0.5000 Max:0.5100 Min:0.4900 Wall: 0.0350 Max:0.0380 Min:0.0320 Length: 10.6325 Spec: (MIL-T 6736B) Seamless Aircraft Grade: 4340 Anneal: Cond N													
CERTIFICATION REQUIREMENTS FAR BAA (FAR 52.225-1 Buy America Act Supplies) DFARS 252.225-7001 By American Act & Bal. of Payments Program FAR TAA (FAR 52.225-6 Trade Agreements) Paragraph 1.3.7.4. This material was produced in accordance with the requirements of ASTM A-450. The Grain size is determined and reported by the raw material supplier in accordance to ASTM E-112. This raw material was magnetic particle inspected by the raw material supplier in accordance to AMS 2640J and/or ASTM E-1444, and rated as Frequency, and Severity to AMS 2301, latest revision. Yield is determined by using the 0.2% offset method. Additional Specifications - AMS-T 6736B, 6360P & 6371L. Material produced in accordance to ASTM A-619-17. Jominy results: J(5/16")=38 J(8/16")=31.													
Chemical Analysis													
C	Mn	P	S	Si	Al	Cr	Mo	Ni	Pb	Cu	V	Ti	Sn
.30	.56	.008	.005	.29	.025	1.02	.20	.13	.000	.18	.009	.003	.009
Physical Properties													
Freq.	Severity	Grain Size											
.000	.000	7											
Mechanical Properties													
TEST	UNITS	#TESTS	HIGH	LOW	AVERAGE	STD-DEV							
Tensile	Psi	6	121110	116340	118173	2536							
Yield	Psi	6	115370	109700	112525	2436							
Elongation	%	6	17	17	17	0							
Rockwell C	Rc	6	22	22	22	0							
TEST	RESULT												
Decarb/OD	Pass												
Total ID/OD decarb	Pass												

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Streator in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

James J. Buresoff
Quality Assurance



PLYMOUTH TUBE CO.
 1000 E. 12th St., St. Clair, Michigan 48089
 Phone: (810) 573-7815 Fax: (810) 572-7313
TRUST YOUR SOURCE - CERTAIN NO SUBSTITUTIONS!

PRODUCT CERTIFICATION

SALES ORDER - LINE / RLS
 179667-1 / 0-

SHIP TO

Factory Steel & Metal Supply C
 14020 Oakland Avenue
 Detroit, MI 48203
 USA

WORK ORDER 03664
 HEAT NUMBER 25537

PCS/HEAT 0

MELT SOURCE Tinklen Steel - Melt/Mfg. USA

CUSTOMER P.O. 3999	CUSTOMER PART SQ-N12035	QUANTITY	LOADING NO	CERT ID / REV /	CERT DATE
PART DESCRIPTION SHSQ0600035J200					
<u>Additional Specification(s)</u>					
<u>TEST</u> Brinell	<u>UNITS</u> Brinell	<u>TESTS</u> 0	<u>HIGH</u> 251	<u>LOW</u> 197	<u>AVERAGE</u> 225
					<u>STD-DEV</u> 27
<p>This test report data is for the heat Chemistry Stated above.</p> <p>The material in this test report is:</p> <ol style="list-style-type: none"> 1) Drawn in the USA 2) Free from Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE), and Mercury contamination. 3) NAFTA compliant. <p style="text-align: right;">End of Certification</p>					

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Streater in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

Janie Beresoff
 Quality Assurance